



Using PubMed

...for searching the MEDLINE database

Available online at http://pubmed.gov

A condensed version of the National Training Center and Clearinghouse's NLM Training: PubMed

Compiled by
New England Region of the National Network of Libraries of Medicine
University of Massachusetts Medical School
Worcester, MA
Reprints: Phone 800-338-7657
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New England Region



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• PubMed, developed by the National Center for Biotechnology Information (NCBI) at the National Library of Medicine (NLM), is available on the web. No registration, fees, or subscriptions are required.

- PubMed is one of several databases under NCBI's Entrez retrieval system and provides access and links to the integrated molecular biology databases maintained by NCBI (DNA and protein sequences, genome mapping data, 3-D protein structures, and the Online Mendelian Inheritance in Man).
- PubMed provides access to over 14 million bibliographic citations dating back to the 1950s.
- PubMed also has links to the full-text versions of articles at participating publishers' Web sites, biological data, sequence centers, etc. from third parties through LinkOut.

This book is an edited guide to searching the MEDLINE database on PubMed. The full PubMed Manual may be found at http://www.nlm.nih.gov/pubs/web_based.html

Publisher Supplied Citations

- These are citations that are electronically supplied by publishers and sent directly to PubMed. The citations are then forwarded to NLM's Indexing Section to be processed.
- Citations received electronically have the tag: [PubMed as supplied by publisher].

Sample PubMed citation that has been electronically submitted but processing has not yet begun:

Notice the [PubMed – as supplied by publisher] tag.

LiCalsi C, Maniaci MJ, Christensen T, Phillips E, Ward GH, Witham C.

A powder formulation of measles vaccine for aerosol delivery. Vaccine. 2001 Mar 21;19(17-19):2629-2636.

PMID: 11257402 [PubMed - as supplied by publisher]

In Process Citations

 MEDLINE in process records provide basic citation information and abstracts before the citation is indexed with NLM's MeSH headings and NLM's quality assurance staff have checked the records for errors.

Sample of an In Process citation in PubMed:

Notice the [PubMed – in process] tag.

LiCalsi C, Maniaci MJ, Christensen T, Phillips E, Ward GH, Witham C.

A powder formulation of measles vaccine for aerosol delivery. Vaccine, 2001 Mar 21;19(17-19):2629-36.

PMID: 11257402 [PubMed - in process]

Other Publisher Supplied Citations

- Some of the citations received electronically from publishers may never become MEDLINE citations.
 - o These records are assigned PMIDs but are not assigned MeSH terms because they do not go through the indexing process.
 - o These records will carry the notation [PubMed] and remain in PubMed even though they are not technically MEDLINE citations.
 - There are two sources of these types of records: (1) out of scope articles from selectively indexed journals and (2) citations from back issues of newly-indexed Medline journals.

MEDLINE & MEDLINE citations

- NLM's premier bibliographic database covering the fields of medicine, nursing, dentistry, veterinary medicine, the health care system, and other areas of the life sciences.
- Contains bibliographic citations and author abstracts from more than 4,500 current biomedical journals published in the United States and 70 other countries. Most records are from English-language sources. Approximately 76% of MEDLINE records include abstracts.
- There are currently 14 million records dating from the 1950s to the present. MEDLINE records are added to PubMed Tuesday-Saturday.
- After MeSH terms, Publication Types, and other indexing terms are added, the in process citations graduate to MEDLINE records.
- Fully indexed MEDLINE records are tagged [PubMed indexed for MEDLINE].

Sample MEDLINE citation in PubMed

Notice the [PubMed – indexed for MEDLINE] tag.

LiCalsi C, Maniaci MJ, Christensen T, Phillips E, Ward GH, Witham C.

A powder formulation of measles vaccine for aerosol delivery. Vaccine, 2001 Mar 21;19(17-19):2629-36.

PMID: 11257402 [PubMed - indexed for MEDLINE]

OLDMEDLINE CITATIONS

On September 30, 2003, 1.5 million OLDMEDLINE citations were added to PubMed. These citations were taken from print indexes and date back to the 1950s. They are identified by the tag [PubMed – OLDMEDLINE for pre-1966].

Notice the tag following the PMID

JONES HW Jr. Related Articles,

CLINICAL SIGNIFICANCE OF ANOMALIES OF THE SEX CHROMOSOMES.

Am J Obstet Gynecol. 1965 Oct 1;93:335-42. No abstract available. PMID: 14337371 [PubMed - OLDMEDLINE for Pre1966]

OLDMEDLINE citations vary from the current PubMed records in several important ways:

- Abstracts: OLDMEDLINE citations do not have abstracts.
- Publication Type: Journal Article is the only publication type used in these citations.
- Language: Some citations will indicate « undetermined » because the actual foreign language was not specified and is, therefore, undetermined.
- *Article titles*: Some are all in caps; over 28,000 citations show 'Not Available' as the title because they lack English translations of the title.
- Other Term: This field contains the original MeSH terms assigned at the time the records were first established. There are no data in the MeSH Heading [MH] field.
 - The subject headings in OLDMEDLINE citations may not relate to current MeSH terminology or Tree numbers.
 - o There are no check tags.
 - Since there is nothing the MeSH Heading field of these records, these citations *cannot* be retrieved by doing a MeSH term search.
 - The MeSH explode capability that collects indented terms is not functional for these citations.
 - Search for these citations by searching the « Other Term » Field with the Text Word [TW] and Other Term [OT] search tags.

PubMed SIDEBAR

Entrez PubMed

- The Overview provides a detailed description of the PubMed database including database coverage and PubMed journal information.
- Click on Help to get detailed descriptions of all the features and search and retrieval options within PubMed. FAQs are frequently asked questions about PubMed.
- Click on **Tutorial** for a Web-based, interactive training program.
- The New/Noteworthy link provides information about recent and future PubMed system enhancements.

PubMed Services

- Use the Journals Database to search for journals by journal title, title abbreviation, or the International Standard Serial Number (ISSN). The list of journals with links to full-text is also included in the browser.
- The **MeSH Database** allows you to browse the MeSH Vocabulary in a hierarchical structure. Searches can also be built here.
- The **Single Citation Matcher** is a fill-in-the-blank form that allows users to enter journal citation information to locate a specific single article or the contents of an individual issue of a journal.
- The Batch Citation Matcher is primarily a tool for publishers. It allows
 publishers to retrieve the PubMed IDs for many articles all at once. This feature
 requires that bibliographic information (journal, volume, page) be entered in a
 specific format.
- The **Clinical Queries** page was designed for clinicians and has built-in search "filters" that focus retrieval in four study categories: therapy, diagnosis, etiology, and prognosis.
- **LinkOut** provides users with links from PubMed and other Entrez databases to a wide variety of relevant web-accessible online resources including full-text publications. This information is intended for groups who want to provide links that PubMed searchers may be interested in using.
- The **Cubby** stores search strategies that may be updated at any time, and LinkOut preferences to specify which LinkOut providers you want displayed in PubMed.

Related Resources

- Order Documents is a link to the Loansome Doc feature that allows users to order full-text copies of articles from a local medical library (local fees and delivery methods may vary).
- Click on the **NLM Gateway** to access NLM's other Web-based service, which also provides access to MEDLINE and additional NLM databases.
- Consumer Health is a link to Medlineplus, NLM's Web site for consumer health information.
- Clinical Alerts expedite the release of findings from the NIH-funded clinical trials where such release could significantly affect morbidity and mortality.
- Click on **ClinicalTrials.gov** to access the NIH/NLM Web site for current information about clinical research studies.

Privacy Policy

The National Center for Biotechnology Information's Privacy Policy for PubMed users.

PubMed makes use of **cookies** and **JavaScript** from your Web browser for several functions. Please enable cookies and JavaScript from your Web browser. These selections may be found under the Edit menu, and then under Preferences (Netscape), or the Tools menu under Internet Options (Internet Explorer). For more information about cookies, see PubMed's Help.

- Entrez PubMed
 Overview
 Help | FAQ
 Tutorial
 New/Noteworthy
 E-Utilities
- PubMed Services
 Journals Database
 MeSH Database
 Single Citation
 Matcher
 Batch Citation Matcher
 Clinical Queries
 LinkOut
 Cubby
- Related Resources
 Order Documents
 NLM Gateway
 TOXNET
 Consumer Health
 Clinical Alerts
 ClinicalTrials.gov
 PubMed Central
- Privacy Policy

Searching With PubMed

PubMed provides a variety of search modes to meet users' individual needs. You can run a simple search by entering a few search terms in the query box or construct complex search strategies using Boolean commands and using the various functions provided by the Features bar that provides additional search options: Limits, Preview/Index, History, Clipboard, and Details. The Features bar will be discussed later in the manual.

How it Works

Subject (keyword) Searching

Search Request: Find citations to articles about lung cancer and alcohol consumption.



Entering Search Terms

- Enter significant terms in the query box (e.g., *lung cancer, alcohol consumption*). The default connector is "AND" so it is not necessary to type that into the search box.
- Click on the **Go** button.
- Use the **Clear** button to erase the contents of the query box.

What is searched?

PubMed uses **Automatic Term Mapping**, where terms that are entered in the query box are matched against (in this order):

- 1. MeSH (Medical Subject Headings) Translation Table
- 2. Journals Translation Table
- 3. Author Index

1. MeSH Translation Table contains:

- MeSH Terms (descriptors) and subheadings (qualifiers).
- See-Reference mappings (also known as entry terms) for MeSH Heading terms.
- Mappings derived from the Unified Medical Language System (UMLS) that have equivalent synonyms or lexical variants in English.
- Names of Substances and synonyms to the Names of Substances.
- Publication Types.

If a match is found in this translation table, the term will be mapped to the appropriate MeSH term and/or Publication Type and/or Substance Name and searched as MeSH **and** as a Text Word.

Here is the PubMed Translation for « lung cancer alcohol consumption »:

("lung neoplasms" [MeSH Terms] OR lung cancer [Text Word]) AND ("alcohol drinking" [MeSH Terms] OR alcohol consumption [Text Word])

NOTE: When a term is searched as a MeSH Heading, PubMed automatically searches that heading and the more specific headings underneath it in the hierarchy. This is called exploding a term.

2. Journals Translation Table contains:

- Full journal title
- MEDLINE abbreviation
- International Standard Serial Number (ISSN)



PubMed Translation:

("N Engl J Med" [Journal Name])

A term will not be searched as both a text word/MeSH and journal name!

3. Author Index

If the term is not found in the MeSH or Journal Translation Tables **and** is a word with one or two letters after it, PubMed then checks the Author Index.

• Enter the author's name in the form of Last Name (space) Initials, using no punctuation:

Examples: o'brien jm pogonka t

• If only the first initial is used, PubMed automatically truncates the author's name to account for varying initials.



- This search retrieves citations to articles written by o'brien j, o'brien ja, o'brien jz, etc.
- If only an author's last name is entered, PubMed will search that name in All Fields (Author field plus all other searchable fields). It will not default to the Author Index because the last name is not followed by one or more initials.

If no match is found?

PubMed breaks apart the phrase and repeats the above process until a match is found.

• If there is no match, the individual terms will be combined (ANDed) together and searched in All Fields.

• PubMed breaks apart a long phrase from right to left, dropping the word at the furthest right:



Searches for:	Results:	Action:
Head lice shampoo	No match found	Removes term on right to re-run Automatic Term Mapping process.
Head lice	Match found in MeSH Translation Table	head lice will be searched as pediculus[MeSH Terms] OR head lice[Text Word]
Shampoo	No match found in Translation Tables	shampoo will be searched as shampoo[All Fields]

PubMed then combines (ANDs) the found matches to produce a single search strategy:

pediculus[MeSH Terms] OR head lice[Text Word] AND shampoo[All Fields]

Phrase Searching

The use of quotes around a phrase forces PubMed to check PubMed's Index to attempt to find the phrase. The Index contains several million phrases.

To search for a specific phrase in the Index, enter double quotes ("") around the phrase.

• Your phrase may actually appear in citation and abstract data, but may *not* be in the PubMed Phrase List. If this is the case, the double quotes are ignored and automatic term mapping applies.

Truncation

Truncation directs PubMed to find all terms that begin with a given text string. Place an asterisk (*) at the end of a term to search for all terms that begin with that word. The asterisk may only be used at the end of a string of characters. PubMed has no single character truncation (wild card in the middle of a term). For example: mimick* will find all terms that begin with the letters mimick; e.g., mimick, mimicked, mimicks, mimicking, etc. **NOTE:** Truncation will turn *off* Automatic Term Mapping in PubMed.

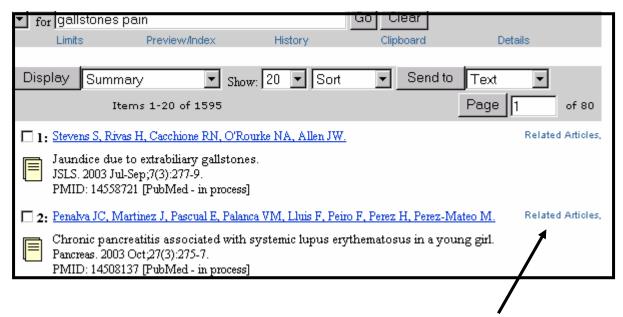
Stopwords

PubMed also refers to a list of commonly found terms that are referred to as "stopwords." Stopwords will *not* be included in your search. This list is available in PubMed's Help.

Search Results Screen

Once you click on **Go** or press the Enter key, PubMed will automatically:

- Run the search
- Retrieve and display citations



Related Articles

Citations in PubMed will have a Related Articles link. Clicking on this link will access the articles in PubMed which are most closely related to the original article. PubMed compares the words from the title and abstract of each citation, as well as the MeSH headings assigned, using a powerful word-weighted algorithm. The Related Articles citation display is in rank order from most to least relevant. You may see a few citations without a Related Articles link. This simply means the citation has not yet gone through the algorithm.

DISPLAY OPTIONS

Summary Format

PubMed citations are initially displayed in the **Summary** format. (as above)

The summary format consists of the following:

- **Author Name(s):** All authors from the record are displayed.
- Links: Available links such as Related Articles, Protein, etc.

• **Title of the article:** Foreign language titles will be translated into English and placed within brackets.

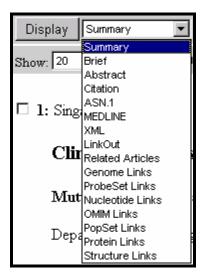
- **Source:** Provides journal title abbreviation, date of publication, volume, issue, and pagination. Articles without abstracts will display the notation: "No abstract available".
- PubMed Unique Identifier (PMID).
- [PubMed as supplied by publisher], Or [PubMed in process], Or [PubMed indexed for MEDLINE] tag.

Additional Display Options

- **Individual Citations:** Clicking on the Author name will display the Abstract display format. Or, click on the icon under the citation number. This will also display the citation in Abstract format.
- **Selected Citations**: Clicking on the box to the left of the item number allows you to select the item. Clicking on the **Display** button will display the selected item(s) in the desired display format. Clicking on the **Display** button without selecting any of the citations will display *all* of the citations listed on the page in the selected display format.

Other Display Formats

The pull-down menu next to the **Display** button allows the user to select available display formats:



Brief Format

Simon JA, et al. Serum ascorbic acid and gallb...[PMID:10761957] Related Articles, LinkOut

A citation displayed in the brief format (above) includes:

- Author name
- first 30 characters of the title
- PubMed Unique Identifier (PMID)

Abstract Format

This display format includes information displayed in the Summary Format along with the abstract (if present in the database) and the author affiliation.

Note that if an abstract was not provided with the original publication of the item, there will be no abstract in PubMed. The National Library of Medicine indexes articles but does not abstract them.

1. Source Arch Intern Med 2000 Apr 10;160(7):931-6

Related Articles, Books, LinkOut

2. Title

Serum ascorbic acid and gallbladder disease prevalence among US adults: the Third National Health and Nutrition Examination Survey (NHANES III).

3. Author

Simon JA, Hudes ES.

4. Affiliation

Medical Service, Veterans Affairs Medical Center, San Francisco, Calif, 94121, USA. jasimon@itsa.ucsf.edu

5. Abstract

BACKGROUND: Ascorbic acid-deficient guinea pigs frequently develop gallstones, and ascorbic acid status may also affect the risk of gallbladder disease in humans. To examine the relationship of ascorbic acid, an antioxidant nutrient involved in cholesterol catabolism, to gallbladder disease, we analyzed data collected from a probability sample of US adults. METHODS: Analyses of data from 7042 women and 6088 men enrolled in the Third National Health and Nutrition Examination Survey. 1988-1994, were performed. Multiple logistic regression models stratified by sex were examined, controlling for the effects of age, race, diet, body mass index, and other potential confounders. RESULTS: A total of 761 women (11%) and 235 men (4%) reported a history of clinical gallbladder disease (symptomatic gallstones or cholecystectomy). Of the 9650 participants without a history of clinical gallbladder disease or abdominal pain consistent with gallbladder disease, and with valid abdominal ultrasonography, 408 (8%) of 4863 women and 274 (6%) of 4787 men had asymptomatic gallstones. Serum ascorbic acid level was inversely related to prevalence of clinical and asymptomatic gallbladder disease among women, but not among men. Among women, each SD (27 micromol/L) increase in serum ascorbic acid level was independently associated with a 13% lower prevalence of clinical gallbladder disease (P = .006) and asymptomatic gallstones (P = .048). CONCLUSION: Ascorbic acid, which affects the catabolism of cholesterol to bile acids and, in turn, the development of gallbladder disease in experimental animals, may affect the risk of gallbladder disease among women.

6. Pubmed ID

PMID: 10761957 [PubMed - indexed for MEDLINE]

Citation Format

Arch Intern Med 2000 Apr 10;160(7):931-936

Related Articles, Books, LinkOut

Serum ascorbic acid and gallbladder disease prevalence among US adults: the Third National Health and Nutrition Examination Survey (NHANES III).

Simon JA, Hudes ES.

Medical Service, Veterans Affairs Medical Center, San Francisco, Calif, 94121, USA. jasimon@itsa.ucsf.edu

BACKGROUND: Ascorbic acid-deficient guinea pigs frequently develop gallstones, and ascorbic acid status may also affect the risk of gallbladder disease in humans. To examine the relationship of

Notice the citation format includes the MeSH terms, Named Substances, and Grant Numbers (if present)

catabolism, to gallbladder disease, we lts. METHODS: Analyses of data from lealth and Nutrition Examination Survey, dels stratified by sex were examined, and other potential confounders.

gallbladder disease (symptomatic gallstones or cholecystectomy). Of the 9650 participants without a history of clinical gallbladder disease or abdominal pain consistent with gallbladder disease, and with valid abdominal ultrasonography, 408 (8%) of 4863 women and 274 (6%) of 4787 men had asymptomatic gallstones. Serum ascorbic acid level was inversely related to prevalence of clinical and asymptomatic gallbladder disease among women, but not among men. Among women, each SD (27 micromol/L) increase in serum ascorbic acid level was independently associated with a 13% lower prevalence of clinical gallbladder disease (P = 0.06) and asymptomatic gallstones (P = 0.048). CONCLUSION: Ascorbic acid, which a cuts the catabolism of cholesterol to bile acids and, in turn, the development of gallbladder disease in experimental animals, may affect the risk of gallbladder disease among women.

MeSH Terms:

- Adult
- Aged
- · Ascorbic Acid/blood*
- Female
- · Gallbladder Diseases/prevention & control
- Gallbladder Diseases/epidemiology*
- Gallbladder Diseases/blood*
- Human
- Logistic Models
- Male
- Middle Age
- Questionnaires
- Support, Non-U.S. Gov't
- Support, U.S. Gov't, P.H.S.
- United States/epidemiology

Substances:

Ascorbic Acid

Grant support:

• HL53479/HL/NHLBI

PMID: 10761957 [PubMed - indexed for MEDLINE]

MEDLINE Format

- Two character tagged field format displaying all fields of the MEDLINE record.
- Use this format for downloading records into bibliographic management software.

UI - 20222594

PMID- DA - 20000421

DCOM- 20000421

LR - 20001218

IS - 0003-9926

VI - 160

IP - 7

DP - 2000 Apr 10

TI - Serum ascorbic acid and gallbladder disease prevalence among US adults: the Third National Health and Nutrition Examination Survey (NHANES III).

PG - 931-6

AB - BACKGROUND: Ascorbic acid-deficient guinea pigs frequently develop gallstones, and ascorbic acid status may also affect the risk of gallbladder disease in humans. To examine the relationship of ascorbic

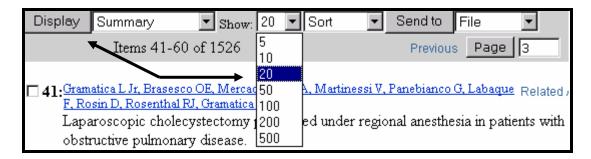
Retrieval Summary



• The retrieval summary line displays the total number of citations retrieved by the current search, and how many pages of citations there are given the selected number of citations per page (default = 20 citations/page).

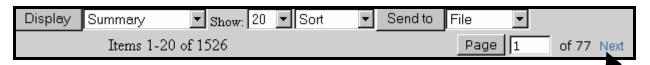
Show pull-down menu

• PubMed displays search results in batches of 20 citations per page (as the default)



- Click on the Show pull-down menu to select a higher/lower number and then click Display.
- PubMed redisplays the citations based on your selection.

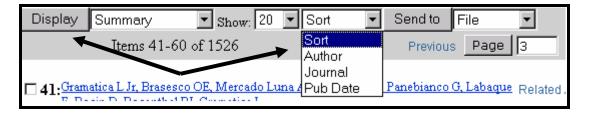
Select Page



• The Results screen has links to the other pages containing the rest of the search results. Click on "Next" to move to the next page of results. Or, if you wish to jump several pages at one time, type in the desired page number and then click "Page."

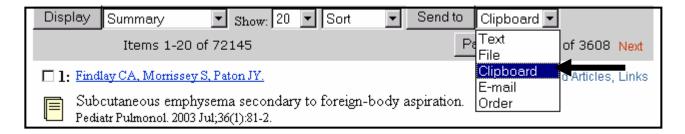
Sort

To sort items by author, journal, or publication date, click on the Sort pull-down menu, select a sort field, then click display. Pub Date sorts by publication date. Select the sort method you'd like and then click "Display" to have the citations displayed in that order.



Send To: Clipboard

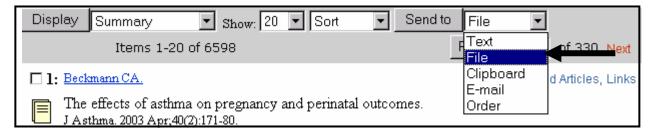
The Clipboard allows you save or view selected citations from one search or several searches that you may want to print, save, email, or order.



- The maximum number of items that can be placed in the Clipboard is **500**.
- The Clipboard will be **lost after eight hours of inactivity** on the computer you are using.
- To place an item in the Clipboard, click on the box to the left of the citation. Then choose **Clipboard** from the drop down list next to "Send to." When **Clipboard** is highlighted, then click on "Send to" and the citations will be stored in the clipboard.
- Once you have added a citation to the Clipboard, the item number color will change.

Send To: File

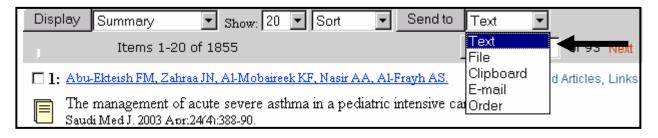
To save your entire set of search results, use the Display pull-down menu to select the desired format, highlight File in the "Send to" pull down menu. Click "Send to." This option saves the entire set of search results in the display format selected.



• To mark **selected citations to save**, click on the check-box to the left of the item number as you go through each page of your retrieval. After you select the citations and choose a display format, highlight **File** in the drop down menu and click "Send to".

Send to: Text

Use Text to redisplay citations using just the text of records and omitting the Web or HTML components. When finished with the text display, use your Web browser's Back button to get back to your results in HTML.

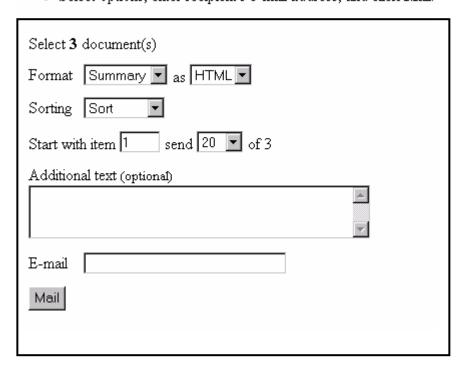


- Use this feature when printing to avoid printing graphics.
- The text version will display either selected citations, or, if no citations are selected, *all* the citations on the page.
- Before using the Text button, consider using the Show pull-down menu to increase the number of items displayed on each page as PubMed will print one page of citations and then stop, waiting for you to display the next page of citations for printing.

Send to: Email



- Use this feature to send citations via email.
- Select email from the drop down "Send to" list. This will bring up a dialog box requesting various pieces of information.
 - · Select options, enter recipient's e-mail address, and click Mail.



• Selected items may be sent directly from the Summary Results page (as shown above) OR a list of items (citation number 1 through 500) may be sent OR items stored on the Clipboard may be sent.

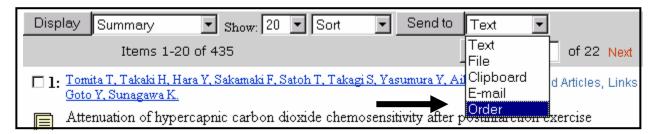
- Sender may choose the format in which to send the citations by selecting from the drop down menu adjacent to the **Format** button.
- Sender may choose whether to send the citations as a text document or an HTML document. **NOTE:** Some email systems do not allow HTML formatted emails.
- Sender may choose to sort the citations prior to sending by using the drop down menu adjacent to the **Sort** button.
- Sender may add a note to the recipient by adding text in the "Additional text (optional)" box.
- The recipient's email address **MUST** be entered.
- **Send** the email by clicking on "Mail".

NOTE: When PubMed sends the email to the recipient, the email inbox will display "Sent by Entrez [nobody@ncbi.nlm.nih.gov]" as the sender. If you wish to use this feature, alert your recipient to be on the lookout for an email Sent by Entrez. Or, consider sending the email to yourself and then forwarding on to your patron.

Printing

- Use the Print function of your Web browser, which will print all the information and citations displayed on your Web page.
- Consider using the **Text** button described above.
- Think about using the Show pull-down menu to display all of your citations on one Web page. You can only print the citations from the displayed page.

Order



- Click Order to use an automated document ordering program called Loansome Doc.
- You can also Order directly from the Clipboard.

The **Order Documents** feature allows you to use an automated document ordering program called **Loansome Doc**.

What is Loansome Doc?

The Loansome Doc feature allows you to electronically order the full-text of a citation from a Loansome Doc participating library in your area. Prior to using this feature, you need to establish an agreement with a Loansome Doc participating library. Your Loansome Doc library will provide you with their **Library ID**, which is needed when setting up the service within PubMed or NLM Gateway.

What does it cost?

The library providing you this service will explain their ordering fees. This service is generally *not* free.

What library can provide me with this kind of service?

Call your Regional Medical Library at 1-800-338-7657 Monday-Friday, 8:30 A.M. – 5:00 P.M. in all time zones to find out which medical library in your area can provide you with Loansome Doc ordering service. Or visit http://nnlm.gov to find a library that can help you.

FEATURES BAR

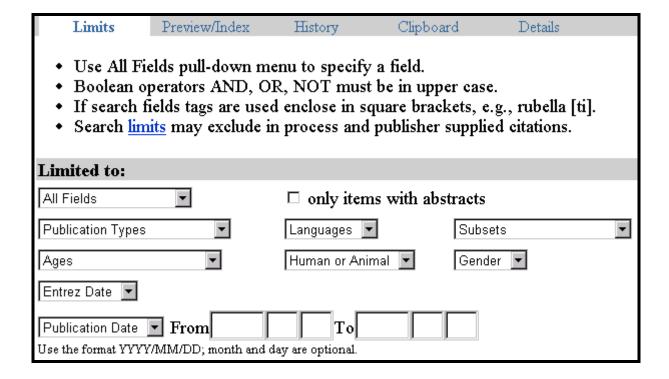


The Features Bar allows you to select and use several additional functions.

Limits

Limits:

- Allows you to limit your search terms to a specific search field.
- Allows you to limit your search to a specific age group, gender, or human or animal studies.
- Also allows you to restrict to articles published in specific languages or to specific types of articles such as review articles.
- You may choose to limit to only citations containing abstracts.
- You can also limit by either Publication Date or Entrez Date (date citation was added to the database).
- You may limit to a specific subset of citations within PubMed, such as Cancer or History of Medicine.



Field Selection

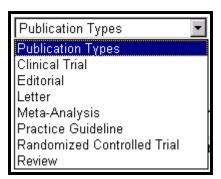
- You may limit your search terms to a specific search field.
- To select a specific field, click the All Fields pull-down menu and select a search field. Enter multiple terms separated by Boolean operators.
- Example: Select MeSH Terms from the pull-down, enter bed rest AND pain in the query box, click **Go**.

Only items with abstracts: Click in this box to retrieve only citations having an abstract present on the record.

only items with abstracts

Publication Types

- You may limit your retrieval based on the type of material the article represents.
- The Publications Types pull-down menu contains a list of frequently searched publication types.



Languages

- Journals from approximately forty languages are indexed.
- The Languages pull-down menu contains a list of frequently searched languages.

Ages

To select a specific age group for human studies, click on the Ages pull-down menu.

Gender

To select a gender, click on the Gender pull-down menu.





Dates

- PubMed contains citations published back to the 1950s.
- New citations are added Tuesday-Saturday.
- You may restrict to two date fields from the Limits screen:

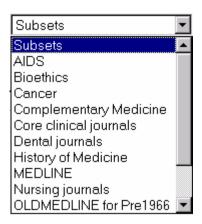
Entrez Date: the date the citation was initially added to PubMed Publication Date: the date the article was published

• When PubMed displays your search results, the citations are displayed in Entrez Date order – last in, first out.

Subsets

Allows you to limit your retrieval to one of the four types of groupings of records:

- 1. Levels of processing:
 - ► MEDLINE: [PubMed indexed for MEDLINE] citations
 - ► OLDMEDLINE for pre-1966



2. Subject Filters:

- ▶ AIDS
- Bioethics
- ▶ Cancer
- ► Complementary Medicine
- History of Medicine
- Space Life Sciences
- Toxicology

3. Journal groupings:

- ► Core clinical journals: 120 English-language journals from the formerly published *Abridged Index Medicus* (a list of these titles is available in Help)
- Dental
- Nursing

4. Other:

PubMed Central

Limits Indicator



- Once you have selected Limits, a check box appears next to the Limits on the Features Bar.
- If you run a search, the limits in effect will appear in the yellow bar above the Display button:

Limits: Child: 6-12 years, English

Preview/Index



Use Preview/Index to:

Preview the number of search results before displaying the citations.

Refine search strategies by adding one or more terms, one at a time.

Add terms to a strategy from specific search fields.

View and select terms from the Index to develop search strategies.

View your search strategy as you continue to refine your search.

Preview

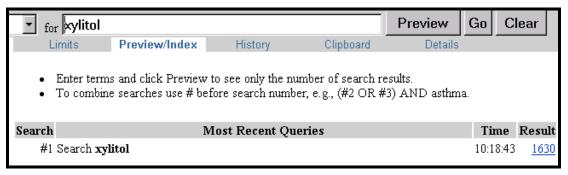
Previewing the number of search results before displaying the citations

Search Request: Find citations on how xylitol prevents tooth decay in children. Xylitol is a sugar substitute used in sugar-free gum, etc.

Enter terms in the query box and click Preview.



PubMed returns the number of citations but not the actual results.



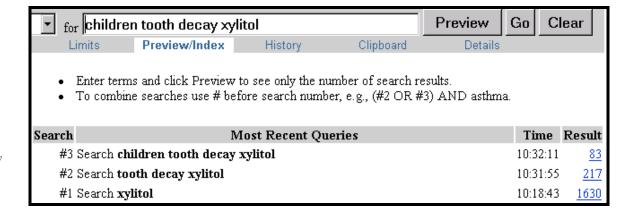
Result shows the number of citations.

Refining search strategies by adding one or more terms at a time

Add another term (e.g., tooth decay) to the query box and click **Preview**.

Continue adding terms (e.g., children) and clicking **Preview** until your strategy is complete.

View your search strategy and number of results as you continue to refine your search.



Preview shows search strategy and number of results as each term is added.

Index

Viewing and selecting terms from the Index to develop search strategies

Use the Index button to view and select terms from the Index of a specific field and to add them to your search strategy.

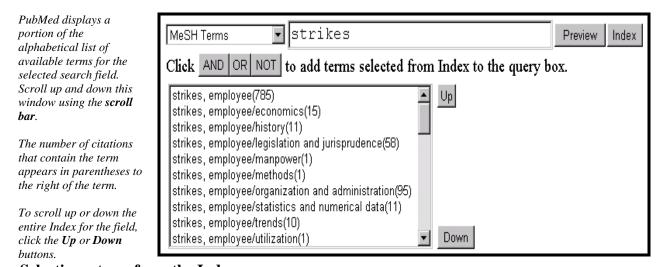
The Index allows you to view a listing of terms within a search field.

You may also select terms to build a search strategy using Boolean operators.

Selecting a field and entering a term to look up in the Index

Search request: Find citations on employee strikes.

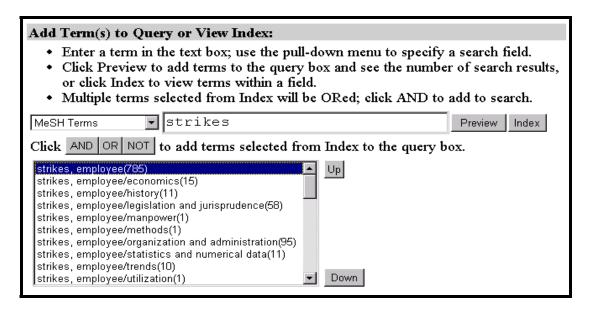
Select **MeSH Terms** from the pull-down menu, type in the term, **strikes** and click on **Index**.



Selecting a term from the Index

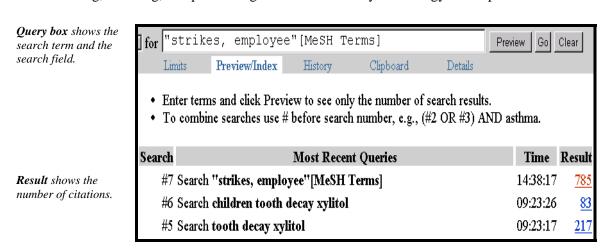
Click on the term to highlight it.

Multiple terms may be selected from the Index. Do this by holding down the Ctrl (control) key on a PC or the apple key on a Mac as you highlight terms. When multiple terms are selected from the Index, the terms will be ORed together.



Click on Preview.

Continue viewing, selecting, and previewing search terms until your strategy is complete.



Note: Preview automatically ANDs together search terms and indicates the number of results. Use the **Boolean operators** to combine search terms as needed. If you use the Boolean operators, your search terms are added to the PubMed query box and you must click Preview to see the number of results.

Note: To **OR** together multiple terms from an Index display and then add (i.e., **AND**) them to your search, click on each term while holding down the Crtl-key (PC) or the Command-key (Mac). When all the terms you want are highlighted, click the connector AND to add the terms (OR'ed together) to the query.

Continuing with the Search example: Find citations about employee strikes.

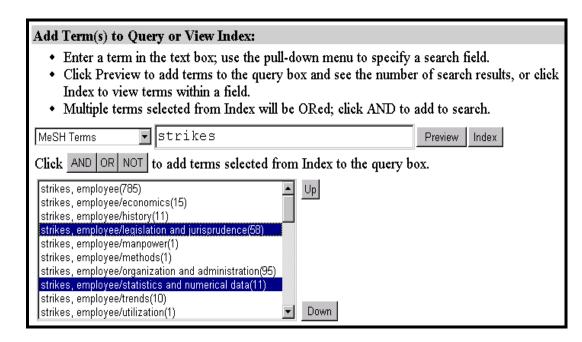
Click to highlight, **strikes**, **employee** used with the subheading of **legislation and jurisprudence** as well as **strikes**, **employee** used with the subheading **statistics and numerical data** in the display.

Click the **AND** button to select and add the terms to the query. Multiple selections are automatically OR'ed together.

Holding down the Crtl or Command key; click to highlight the terms.

Click on the **AND** button.

Multiple selections are automatically OR'ed together.



The following search is added to PubMed's query box: ("strikes, employee/legislation and jurisprudence" [MeSH Terms] OR "strikes, employee/statistical and numerical data" [MeSH Terms]). To run this search in PubMed, click the Go button.

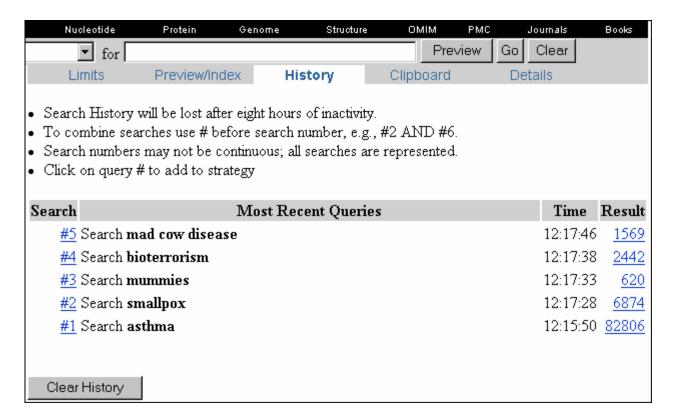
Author Field Index: PubMed automatically truncates on the author's name to account for varying initials, e.g., smith j will retrieve smith ja, smith, jb, smith j jr, etc. In the Author Field Index, when an author's name is displayed with the @ symbol after the first initial, this indicates occurrences of the author name without a middle initial. Selecting smith j@ from the index will retrieve smith j only.

History



History holds up to 100 search strategies and results from this search session. The History screen displays:

- ► Your search query
- ► The time of the search
- ► The number of citations in your search results



Using History

• Each search statement number is a hyperlink. Click on the number and a menu pops up:

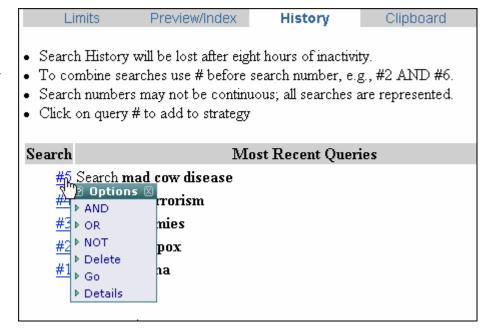
Combine searches using # before the search number and capitalizing connecting words, as described here.

Or, use the AND, OR, NOT options from the pop-up menu for each search.

Use Delete to delete a specific search from History.

Use Go to return to a selected search.

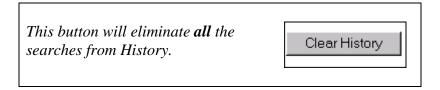
Use Details to see the Details box for a selected search.



• You can also use History to Preview search results, just like with the Preview/Index feature.

History Tips:

- ➤ Maximum number of queries that can be held in History is 100.
- ➤ Your search history will automatically be **lost after 8 hours of inactivity**.



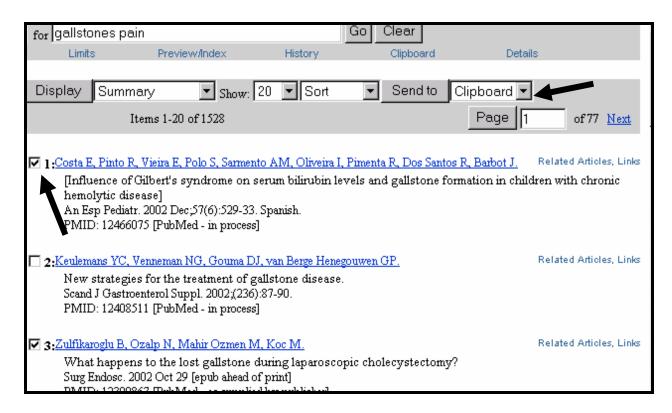
⇔Caution: Search statement numbers from History should *not* be used in a strategy that you intend to save using the URL button in Details or in any search strategies you plan to store in the Cubby.

<u>Note</u>: In History, search #0 represents citations on the Clipboard. For example, limit the items on the Clipboard to English language citations using the following search: #0 AND English[la]

Clipboard



Allows you to save or view selected citations from one search or several searches.



To place items on the clipboard, click on the check-box to the left of the citation.

Then select **Clipboard** from the **Send to** drop down menu. Click "Send to". A confirmation message states the number of items added to the Clipboard:

```
3 items were added to Clipboard.
Clipboard items will be lost after eight hours of inactivity.
The maximum number of Clipboard items is 500.
```

Once the citations are added to the Clipboard, that citation's item number color changes from black to green.

NOTE:

The maximum number of items the clipboard can hold is 500.

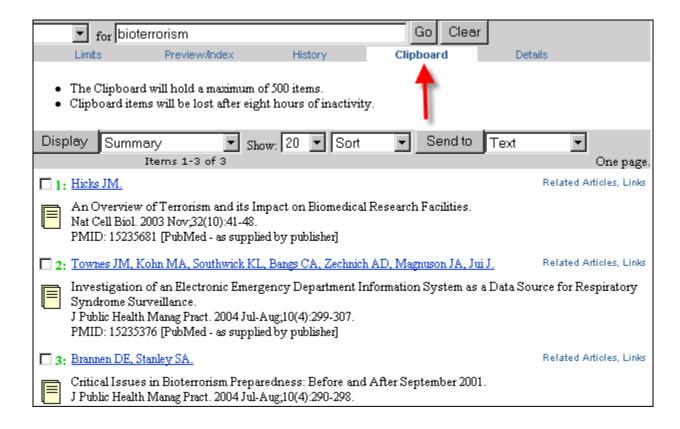
If you click **Send to: Clipboard** *without* selecting citations using the check-box, PubMed will add <u>all</u> the citations in your result set to the clipboard (up to 500 citations).

The clipboard will be lost after eight hours of inactivity.

You can **sort**, **print**, **save**, **email or order** the citations on the Clipboard.

Using the Clipboard

To view the contents of your clipboard, click on Clipboard from the Features bar.



To delete selected citations, click on the box to the left of the item number and then select **Clip Remove** from the drop down menu adjacent to "Send to." Click **Send to**.

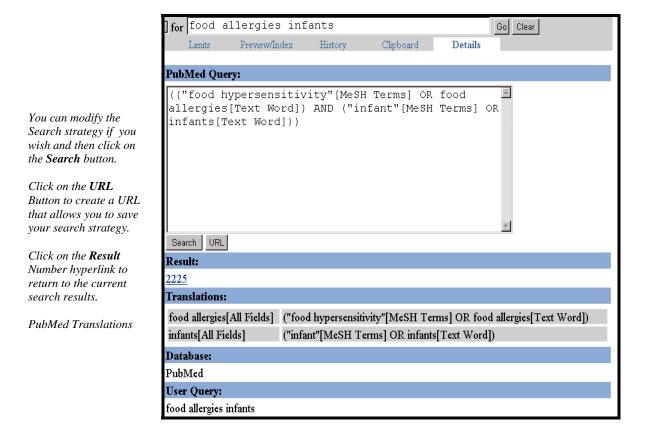
Caution: If you follow this procedure without selecting individual citations, ALL citations will be removed from the clipboard.

Details



- Clicking on Details displays your search strategy as it was translated by PubMed.
- Error messages (e.g., stopwords, truncation warnings, misspellings) are also displayed.
- The PubMed Query box in Details allows you to edit a search strategy and resubmit it.
- Details also allows you to save a search strategy.

Here's a closer look at Details:



Current Awareness Searching

If you wish to run a search periodically to retrieve recent information since you last ran the search, you can use the PubMed **Cubby**. See the Cubby section for more details.

Searching with MeSH

Two selections are available for MeSH searching from the field selection **pull-down menu from Limits:**

- **MeSH Terms** Use when you want to qualify a term so that it is searched only as a MeSH heading. Unqualified search terms that are MeSH headings will automatically be searched as a MeSH term *as well as* a Text Word.
 - **MeSH Major Topic** Use when you wish to limit to articles where the topic is the main point of the article.

When a term is searched as a MeSH Heading, PubMed automatically searches that heading and the more specific headings underneath in the hierarchy. This is called exploding a term.

Note:

Searching with MeSH terms will *exclude* in process citations, publisher-supplied citations, and OLDMEDLINE citations as they have not been indexed with MeSH headings.

Face Cheek Chin Eye Eyebrows Eyelids + Forehead Mouth Lip Nose

The MeSH term **Face** when searched as a MeSH Term in PubMed would search the heading Face as well as all the more specific terms below the term in the hierarchy.

MeSH Database

The MeSH Database allows you to:

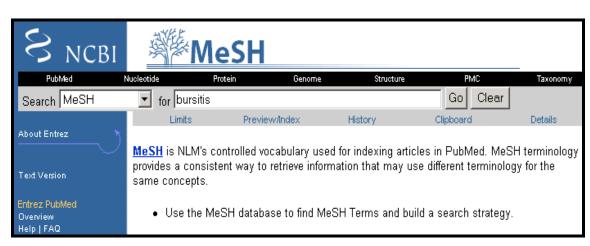
- Locate and select MeSH terms (Headings, Subheadings, & Publication Types)
- See the definition and other helpful information for a MeSH term.
- Build a PubMed search strategy.
- Display MeSH terms in the hierarchy.
- Limit MeSH terms to a major concept for a search.
- Attach subheadings for a search.
- Link to the NLM MeSH Section's MeSH Browser

How to Get There

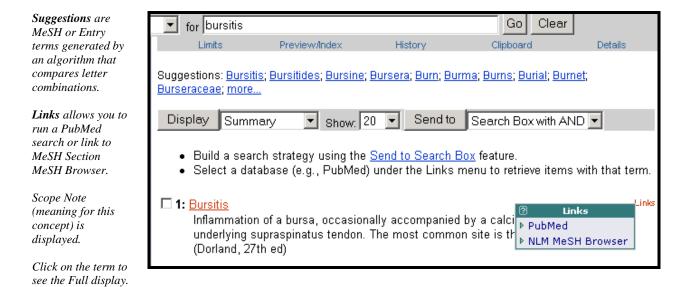
• Click on MeSH Database on the blue sidebar on the left hand side of the PubMed page.

Now, let's use the MeSH Database to build a search strategy for a search for citations about the *diagnosis of bursitis*.

Enter the term, bursitis, in the query box and click the Go button.



PubMed displays retrieval from this database in the Summary format:



The **Full** Display provides more information about the term:

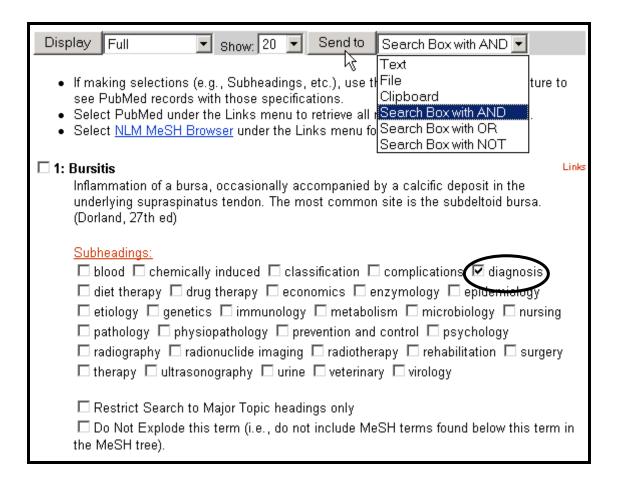
[See next page]

	☐ 1: Bursitis
	Inflammation of a bursa, occasionally accompanied by a calcific deposit in the underlying supraspinatus tendon. The most common site is the subdeltoid bursa. (Dorland, 27th ed)
Use the check boxes to select subheadings. Click on the Subheadings link to see a list of subheading definitions.	Subheadings: □ blood □ chemically induced □ classification □ complications □ diagnosis □ diet therapy □ drug therapy □ economics □ enzymology □ epidemiology □ etiology □ genetics □ immunology □ metabolism □ microbiology □ nursing □ pathology □ physiopathology □ prevention and control □ psychology □ radiography □ radionuclide imaging □ radiotherapy □ rehabilitation □ surgery □ therapy □ ultrasonography □ urine □ veterinary □ virology
Use these checkboxes to restrict to major topic or to not explode a term.	☐ Restrict Search to Major Topic headings only ☐ Do Not Explode this term (i.e., do not include MeSH terms found below this term in the MeSH tree).
Entry Terms (synonyms) are provided.	Entry Terms: Bursitides Adhesive Capsulitis Adhesive Capsulitides Capsulitides, Adhesive Capsulitis, Adhesive
MeSH hierarchy is displayed with searched term in boldface.	All MeSH Categories Diseases Category Musculoskeletal Diseases Joint Diseases Bursitis Periarthritis

Send to Search Box

To specify a search for: Citations about the diagnosis of bursitis

- 1. Select the diagnosis subheading from the Full display screen.
- 2. Select Search Box with AND and click on the **Send to** button.



NOTE: The MeSH browser allows terms to be saved to the Clipboard. This is NOT the same Clipboard that you see when in the PubMed Database. This is the MeSH Database Clipboard.

The term with any specifications will appear in the Search Box:



To add additional terms to this strategy, continue searching the database and add terms to the Search Box using the Send to Search Box feature.

CLINICAL QUERIES

This specialized search query is intended for clinicians and has built-in search 'filters' that search for research-based citations. Four study categories or filters are provided:

- therapy
- diagnosis
- etiology
- prognosis

Two emphasis categories or filters are provided:

sensitivity (also referred to as "recall" -- includes relevant articles but probably some less relevant; will get more retrieval)

specificity (also referred to as "precision" -- will get less retrieval)

How to get there

Click on Clinical Queries on the PubMed homepage sidebar to access this search feature.

SYSTEMATIC REVIEWS

- This feature is provided to help clinicians locate systematic reviews and similar articles.
- It combines your search term(s) with citations identified as systematic reviews, metaanalyses, reviews of clinical trials, evidence-based medicine, consensus development conferences, and guidelines.
- Citations from journals specializing in clinical review studies are also included.
- Retrieval can be further refined using Limits.

JOURNALS DATABASE

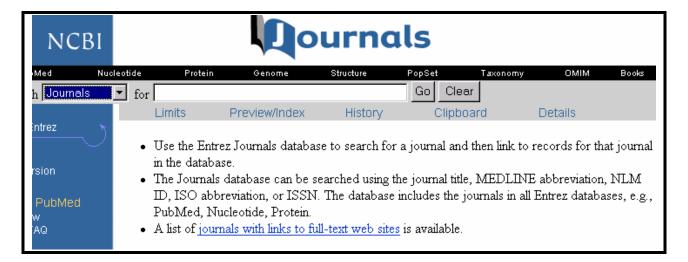
The PubMed Journals Database allows you to look up information about a journal in PubMed and search for citations from that journal. You can locate a journal using:

Title

ISSN (International Standard Serial Number) MEDLINE journal title abbreviations

How to get there

Clicking on the Journals Database link from the PubMed homepage sidebar takes you to Journal Browser screen:



- Some journals may require that you register, subscribe, or pay a fee in order to view the full text of an article.
- Contact the journal publishers as noted on their individual Web sites for specific access information.
- Click on **journals with links to Publisher Web sites** for a list of full-text journals available on the Web to which PubMed is currently linked. New journals are regularly added.

Journals Database screen:

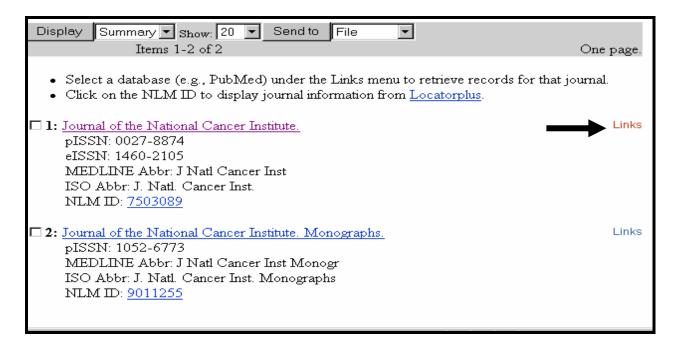
Enter the journal information. Click on the **Go** button to run the search.

Example: Journal of the National Cancer Institute



Result:

[see next page]



Clicking on the title will display a more detailed record for the journal. Clicking on the NLM ID will display the record from Locator*plus*, the NLM catalog.

Clicking on **Links** at the right hand side of the page will display a drop down menu. Select PubMed from this menu if you wish to do a search for all citations from this journal in PubMed.

CITATION MATCHER

The **Single Citation Matcher** allows you to find a single citation using bibliographic information such as a journal name, volume, issue, page number, publication date, and title words.

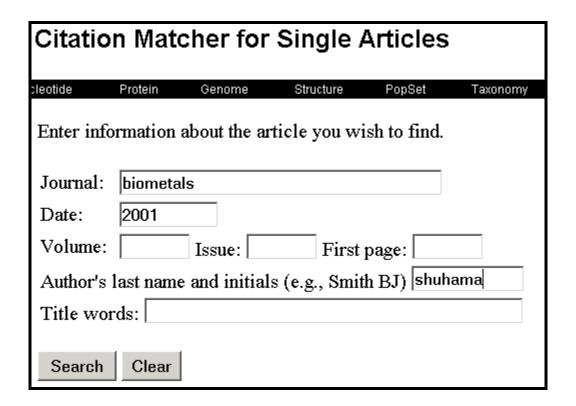
The **Single Citation Matcher** can also be used to get a "Table of Contents" listing of items indexed from a particular issue of a journal. Caution: Remember some MEDLINE journals are selectively indexed and there are indexing policies which might mean that not every item from every journal will be in the database.

How to Get There

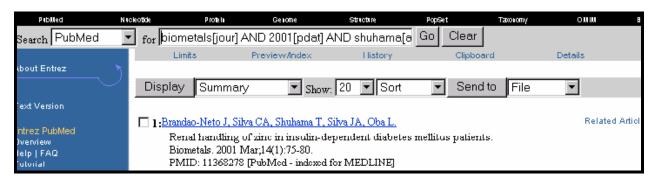
Clicking on **Single Citation Matcher** on the PubMed homepage sidebar takes you to the Citation Matcher for Single Articles screen:

Example: *Biometals*, 2001, one author is Shuhama

Enter as much information as you know. Only one field is required. Click Search.



Result:



If you know four or more significant words from the title, that is often all that is needed to locate a reference.

Example: You are looking for the citation for an article entitled "Where does it hurt? Pain localization in osteoarthritis in the knee."

- Enter significant words from the title.
- Click on the **Search** button.

CUBBY

The Cubby currently has these functions:

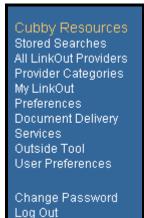
• The Cubby stores searches that can be updated at any time from any computer (to check for new items since you last checked), and;

 The Cubby stores LinkOut preferences that specify which LinkOut providers you want displayed in PubMed.

Getting to the Cubby

• Click on Cubby on the PubMed Sidebar.

Cubby Sidebar



- **Stored Searches** provides a link to your Cubby Stored Searches.
- All LinkOut Providers lists each LinkOut provider in alphabetical order.
- Provider Categories lists LinkOut providers organized by subject categories.
- The **My LinkOut Preferences** page displays the LinkOut preferences you have selected.
- **Document Delivery Services** allows you to customize the service you link to when you click the Order button.
- **Outside Tool** institutions use this to setup a link on all PubMed records to point back to the institution's local service.
- User Preferences allows you to store a default e-mail address.
- The **Change Password** page lets you change your password.
- **Log Out** logs you out of the Cubby. Your login is good for 12 hours, unless you log out.

Using Cubby

- To use Cubby you need a User Name and Password.
- To create your User Name and Password click "I Want to Register for Cubby."
- If you've forgotten your password, click "Help! <u>I Forgot My Password</u>." (You will need to know your User Name and security word.)

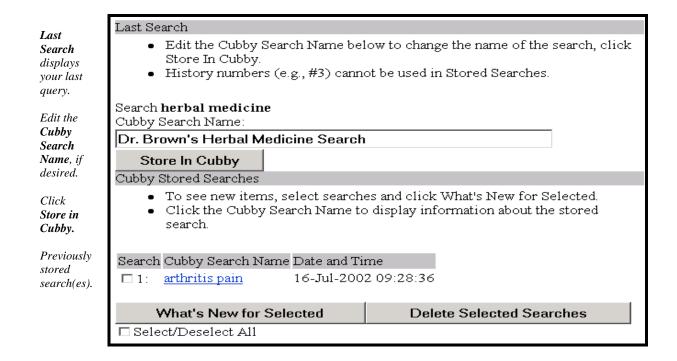
Cubby Stored Searches

Use the Cubby to store a new search strategy, see a list of your stored searches, check for new items retrieved by a stored search since you last checked, or delete a stored search.

How to Store a Search

- From anywhere in PubMed, run or Preview your search.
- You can store any search using terms and limits necessary for your topic.

- Click **Cubby** on the sidebar.
- Last Search displays the last search query, including limits, if used.
- Edit the name of the search to something manageable yet meaningful, if necessary.





You can store up to 100 searches in a single Cubby account. You can have as many Cubby accounts as you need.



The Cubby will let you store multiple searches with identical names. Be sure to name each of your Cubby stored searches *uniquely*.



Links to "Related Articles" and History numbers (e.g., #3) cannot be stored as part of Cubby Stored Searches. Also, dates or date ranges are not recommended in your strategies. See the What's New Strategy (discussed later in this workbook) for more information on date ranges.

Stored Search Information

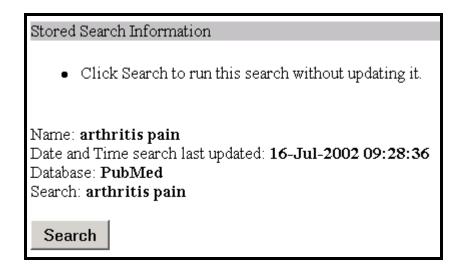
• Stored searches are numbered and listed in descending order according to the date and time they were originally stored.

• To review information about a stored search, click on the search name.

Click on a
Cubby
Search
Name to see
search
information.



- Stored Search Information includes the search name, date and time last updated, database searched, search terms, as well as fields and limits when applicable.
- Click the **Search** button to run the search without update limits. This will not change the date and time the search was last updated.



UPDATING CUBBY STORED SEARCHES

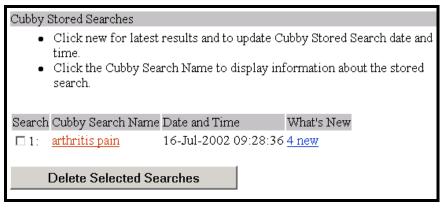
It is easy to check for new items since your last update.

 Select the stored search(es) you want to update by clicking the check box(es) next to the Cubby Search Name.

- To select all searches click the "Select/Deselect All" check box.
- Click the **What's New for Selected** button.



- The Cubby displays the list of searches you selected along with an additional column indicating the number of new items retrieved since the last time you checked.
- If there are no new items, the Cubby displays "0 new."
- Click # **new** to link to the new items.
- Clicking on this link displays the new items, **and** updates the stored search in the Cubby with the new date and time.
- If you do not click # new, the search, date, and time are not updated.



Click on 4 <u>new</u> to link to the new item(s) and update the stored search date and time.



The **Details** button will not display on the results screen after updating a Cubby stored search. This is because the update strategy for your search actually incorporates three separate strategies and Details can only display a single strategy at a time.



The What's New strategies used for the Cubby feature are detailed in PubMed's Help.

Deleting Stored Searches

Select the stored search by clicking the check box next to the Cubby Search Name, and click "Delete Selected Searches." You can select and delete multiple searches at one time.

Store a default E-mail address in Cubby

When items are sent via email from PubMed, they show up in the recipient's email inbox with the sender's name as "Sent by Entrez." Many library patrons will not be familiar with this name and may delete the email in error due to that fact. To remedy this, many librarians chose to send email from PubMed first to themselves and then forward it on to their patrons. That way, when the patrons receive the email, there will be a recognizable name in their inbox. If you chose to always send your PubMed emails to yourself first, you may wish to save a your email address as a default in the Cubby.

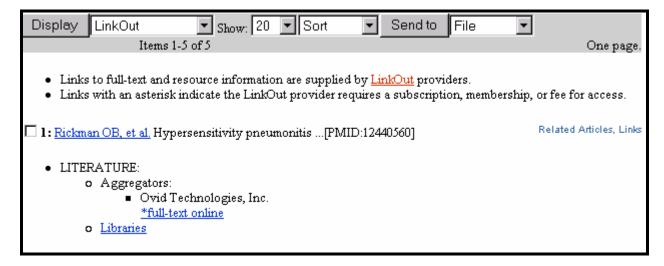
- Log into the Cubby
- Click on User Preferences from the Cubby sidebar
- Enter the email address you wish to store in the available box.
- Click on "Update" to store this address. Now, anytime you are logged into the Cubby and decide to send citations via email, this address will appear in the address box.

Logging Out

• Click **Log Out** from the Cubby sidebar to Log Out. Otherwise your login remains active for 12 hours

LINKOUT LINKS

• Links to other providers appear on the LinkOut display format.



- The LinkOut format displays (if available) by broad categories (e.g., LITERATURE), and then by subject categories (e.g., Libraries) selected by the LinkOut provider.
- Click on the Libraries link to see the list of libraries providing full-text for the citation.
- Links with an asterisk indicate the LinkOut provider requires a subscription, membership, or fee for access.
- Links also provide access to a variety of other web resources it is PubMed's doorway to the Internet.

NOTES

NOTES